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REMARKS

Independent claims 1 and 27 have been amended to provide that the exhaust stack extends within the water jacket for a longitudinal distance which approaches the length of the water jacket on each pass of the exhaust stack through the water jacket. This amendment is made to distinguish over any possible reading of the Enander reference as discussed in greater detail below. Claims 1-11 and 24-29 remain in this application and stand for examination. Claims 12-23, 30 and 31 stand withdrawn from consideration although applicant refers the Examiner, with respect, to the discussion concerning the withdrawal of claims 15-19 set out immediately hereinafter. Re-consideration and re-examination are requested in view of the foregoing amendments and the comments made hereinafter.

Observation concerning withdrawal of claims 15-19

Applicant notes that claims 15-19 stand withdrawn from consideration. Applicant submits, however, that this withdrawal was incorrectly submitted. Claim 15 is dependent from claim 1 which remains in this case and claims 16-19 all likewise depend from claim 1 through claim 15 or claim 16. Applicant submits therefore that these claims should be considered in the present application along with claim 1.

Applicant also submits that any argument submitted for allowance of claim 1 should likewise apply to withdrawn claims 15-19. Applicant submits that claims 15-19 should, therefore and with respect, stand or fall on the allowance of claim 1 and that no additional search is needed since these claims narrow the scope of protection sought by claim 1.

Rejection of claims 1, 3, 4, 8, 27 and 28 for anticipation

The Examiner rejects claims 1, 3, 4, 8, 27 and 28 for anticipation in view of Enander United States Patent

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5,025,985.

Initially, it is noted that the present invention relates to a significant improvement in efficiency in producing hot water from a burner. This is so because not only is the water in the water jacket which surrounds the burner heated by the burner but, as well, the water in the water jacket is heated by the hot combustion gases emanating from the combustion within the burner. Thus, the water in the water jacket is heated by two sources. A second significant advantage in using the exhaust duct for heating the fluid is that the exhaust gas itself is cooled and therefore departs from the exhaust stack at a lower temperature. Heaters according to the present invention are used in boats and recreational vehicles. Higher temperatures of exhaust gases are dangerous because there are often volatile vapors around such as propane vapors and gasoline vapors. The lower the exhaust temperature, the less likelihood there is of combusting the vapors. The disadvantages and dangers of using propane are set forth in the specification at page 1, line 15 over to page 2, line 9.

In disclosing the construction of the present improvement, reference is made to Figures 1A and 5B. With initial reference to Figure 1A and to the specification at page 7, line 11, an exhaust jacket 103 surrounds burner 101. The exhaust jacket 103 conveys hot exhaust from the burner to the exhaust manifold 104 and thence to the stack 110. More importantly, the water jacket 110 surrounds the burner 101 and the water in the water jacket 110 is heated not only by the burner 101 but also by the exhaust manifold 104 as is clearly seen in Figure 1A. As also described at page 11, lines 1-8, hot gases emanate from the combustion flame 122 and leave the end of the burner tube 101. The exhaust gases travel into the exhaust jacket 103 to a first stack 124 and then to a second passageway 104 located within the water jacket 110. The exhaust then exits the second passageway 104 through outside stack 110.

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Enander simply does not teach such a configuration at all. Enander does describe a burner 48 and such a burner has a "coolant jacket (not shown) of such burner 48...[which has] a diameter ...greater than that of the o.d.[outside diameter] of the combustion chamber 49 (Figure 3)." See col. 7, lines 60-64. Most importantly, however, Enander does not have an exhaust manifold which runs through his "coolant jacket". As set forth in the Enander disclosure and with reference to Figure 5, Enander teaches a "combustion chamber 49...in the form of a closed...cylinder 50 [with] an air/fuel inlet 51 at one end 52 and an exhaust pipe 53...at the other end 54." See col. 7, lines 55-59. There is no teaching whatsoever that Enander's exhaust pipe passes through his water jacket which is not illustrated in Enander's disclosure. In addition, while Enander does state that his burner has a coolant jacket, he does not teach or show that the coolant jacket also surrounds the end of his combustion chamber 49 which would be necessary if his exhaust duct passes through a water jacket. In fact, Enander states that his coolant jacket "...[has] a diameter typically one inch greater in diameter than that of the o.d. of the combustion chamber 49 (or seven inches) and a length of about twelve and one-half inches...". Col. 7, lines 62-65. Thus, there is a clear implication that his water jacket does not extend about the end of the burner 48. In any event, with a coolant jacket having a diameter one inch greater than the o.d. of the combustion chamber 49, there is just no room available for an exhaust duct to travel through the water jacket. It is inescapable that the exhaust pipe 53 of Enander travels directly from the end 54 of the combustion chamber 49 and that such exhaust pipe 53 does not travel through the coolant jacket because it cannot.

However, to ensure this remote Enander possibility does not read on the claims of the present application, applicant has provided in claims 1 and 27 that the exhaust stack in the water jacket runs "generally longitudinally for a distance which approaches the length of the water jacket...". In this manner, it is clear the claims of the present

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application do not read on the remote possibility that Enander's exhaust duct passes through the water jacket when it leaves the end 54 of his combustion chamber 49.

Rejection of claims 2, 5, 6 and 7 for obviousness

The Examiner rejects claims 2, 5, 6 and 7 for obviousness on the basis of the aforementioned Enander reference.

Claims 2, 5, 6 and 7 are all dependent from claim 1 as amended. The deficiencies of Enander and the amendments to claim 1 have been discussed above. For the same reasons claim 1 is deemed to patentably distinguish over the Enander reference, claims 2, 5, 6 and 7 are likewise deemed to patentably distinguish over the Enander reference.

Rejection of claims 9, 10 and 11 for obviousness

The Examiner rejects claims 9, 10 and 11 for obviousness under 35 U.S.C. 103(a) on the basis of aforementioned Enander in view of Moore, Jr. et al United States Patent 4,925,093.

The Enander reference has been discussed above. Enander does not teach a water jacket with an exhaust duct extending within the water jacket as now defined in claim 1. Moore, Jr. et al do not teach a water jacket at all. Moore, Jr. et al teach a water tank that holds potable water. A combustion chamber within the water tank provides heat to the water within the tank. Since Moore, Jr. et al do not teach a water jacket surrounding the combustion chamber, it makes no contribution to the Enander reference. Claims 9, 10 and 11 are dependent from claim 1 and for the same reasons claim 1 is deemed allowable, claims 9, 10 and 11 are likewise deemed allowable.

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Allowable subject matter in claims 24-26

Applicant notes with appreciation the Examiner's indication of allowable subject matter in respect of claims 24-26.

Prior Art of Record

Applicant notes the remaining prior art made of record and not relied upon by the Examiner.

In view of the above, it is submitted that this application is now in condition for allowance. Re-consideration and withdrawal of the objections and rejections is requested and allowance of claims 1-11, 15-19 and 24-29 is solicited.

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Respectfully submitted,

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